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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,159	07/13/2004	Tetsu Watanabe	SON-2599	5399

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EXAMINER

GOMA, TAWFIK A

ART UNIT	PAPER NUMBER
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2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/501,159

Applicant(s)

WATANABE ET AL.

Examiner

Tawfik Goma

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The disclosure is objected to because of the following informalities: The spelling of "collimeter" lens throughout the specification is not correct and should be corrected to collimator lens. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-10, 16 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe (JP 2001-297457).

Regarding claims 1 and 16, Watanabe discloses a flying head type optical head apparatus, comprising: a fixed arm (11 A, fig. 1); a suspension (12, fig. 1), an end of which is fixed to said fixed arm and the other end is a free end (12, fig. 1); a slider attached to the free end of said suspension (13, fig. 1); an object lens mounted on said slider (15, fig. 1); an optical means fixed to said fixed arm and having a light source and a light receiving system (16, 17, fig. 1); a collimator lens positioned between said light source and said object lens along an optical axis

connecting said light source and said object lens (17, fig. 1 and par. 101), for converging a light from said light source to make it enter said object lens (par. 101), converging a returned-back light from said object lens to make it enter said light source (par. 101 and 17, fig. 1); and a first collimator lens moving means for moving said collimator lens along said optical axis between said light source and said object lens (21, fig. 4 and par. 105); wherein the slider mounted with said object lens, attached to the free end of said suspension floats due to a wind pressure of a rotary body rotating at a position facing to said object lens (par. 119).

Further regarding claim 16, Watanabe discloses a control apparatus for performing tracking control on said optical head apparatus, comprising a collimator lens position control means for controlling a position of said collimator lens by driving said first collimator lens moving means based on a focus error signal (pars. 81-83).

Regarding claim 4, Watanabe further discloses wherein said first collimator lens moving means is an electromagnet (21, fig. 4 and par. 55).

Regarding claim 5, Watanabe further discloses wherein said first collimator lens moving means is a Piezo-effect element (16, fig. 1 and par. 55).

Regarding claim 6, Watanabe further discloses wherein said rotary body is a rotary optical recording medium (3, fig. 1 and par. 36).

Regarding claims 7 and 19, Watanabe further discloses a second collimator lens moving means for substantially moving said collimator lens in the direction perpendicular to said optical axis (16, fig. 7).

Further regarding claim 19, Watanabe discloses control apparatus further comprises a tracking sub servo control means for controlling a position of said collimeter lens to the track

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direction of said rotary recording medium by driving said second collimeter lens moving means based on a tracking error signal (44, fig. 3 and pars 75-76).

Regarding claim 8, Watanabe further discloses wherein said second collimator lens moving means is an electromagnet (21, fig. 8 and pars.103-104).

Regarding claim 9, Watanabe further discloses wherein said second collimator lens moving means is a Piezo-effect element (16, fig. 7 and pars. 103-104).

Regarding claim 10, Watanabe further discloses wherein said rotary body is a rotary magneto-optical recording medium (3, fig. 7 and par. 36).

Regarding claim 20, Watanabe further discloses wherein said rotary recording medium has one or a plurality of recording surfaces (3, 32, fig. 1); and said collimator lens position control means of said control means drives said first collimator lens moving means to adjust a position of said collimeter lens so that a light from said light source is focused on one recording surface subjected to recording or reproducing of data through said object lens among one or a plurality of recording surfaces of said rotary recording medium (par. 133).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (JP 2001-297457) in view of Yoo (US 6243216).

Regarding claims 2 and 17, Watanabe fails to disclose wherein said collimeter lens is positioned so that a focal position thereof positions approximately at a light emission point of said light source, and an incident iris of said object lens positions at a focal position when assuming that a parallel light enters from the light source to said collimeter lens. In the same field of endeavor, Yoo discloses wherein a collimating lens receives light from a source at a focal position and makes the light parallel at the position of the iris of an objective lens (1-3, fig. 3). It would have been obvious to one of ordinary skill in the art to have the collimator lens of Watanabe adjust light emitted from a focal point at a laser such that is parallel at the iris (thus if parallel light enters the collimator lens making it focus on the iris). The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide the feature of the collimator lens in order to have completely parallel light enter an objective lens eliminating the need for adjustment of the objective lens in the focusing direction.

Regarding claims 3 and 18, Yoo further discloses wherein a distance between said collimeter lens and the light emission point of said light source is approximately equal to a distance between said collimeter lens and the incident iris of said object lens (Table 1, col. 3 line 41 and fig. 3).

Claims 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (JP 2001-297457) in view of Knight (US 6449221).

Regarding claim 11, Watanabe fails to disclose wherein said optical means fixed to said fixed arm emits a light from said light source along a surface of said arm; and said fixed arm is provided with a mirror for directing the light emitted from said optical means to said collimator

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lens. Watanabe discloses a mirror provided on the optical package (171, 17A, fig. 2) but fails to disclose wherein the light travels along the surface of the fixed arm where the mirror is located. In the same field of endeavor, Knight discloses a mirror located on a fixed arm of a flying head which directs light to a collimator lens (2020, fig. 20A and fig. 21). It would have been obvious to one of ordinary skill in the art to modify the apparatus disclosed by Watanabe by providing the mirror on the fixed arm. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the mirror on the fixed arm in order to control fine tracking of the laser light on the medium (see col. 3 lines 7-17).

Regarding claim 12, Knight further discloses wherein said optical means fixed to said fixed arm emits a light from said light source along a surface of said fixed arm; and said fixed arm has a mirror for directing the light emitted from said optical means to said collimator lens and a mirror rotation means for rotating the mirror for making the light emitted from said optical means enter said collimator lens by being shifted from said optical axis (2022, fig. 2A and fig. 21).

Regarding claim 15, Watanabe fails to disclose wherein said object lens is configured by combining two converging lenses provided close to the slider and used for a near field recording operation. In the same field of endeavor, Knight discloses a composite lens for near field recording (fig. 28G). It would have been obvious to one of ordinary skill in the art to modify the apparatus disclosed by Watanabe by providing the composite lens of Knight. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the composite lens in order to increase the NA of the system, thereby reducing the spot size of the beam and increasing the recording density of the media.

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Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (JP 2001-297457) in view of Knight (US 6449221) as applied to claims 11, 12 and 15 above and further in view of Fuji et al (US 4667315).

Regarding claim 13, Watanabe in view of Knight fail to disclose wherein said mirror rotation means is an electromagnet. In the same field of endeavor, Fuji discloses an electromagnet for rotating a mirror in an optical head assembly (col. 24 lines 3-11). It would have been obvious to one of ordinary skill in the art to provide an electromagnet for driving the mirror as taught by Fuji. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide an electromagnet to drive the mirror in order to improve the stability of the control system (see col. 3 lines 16-36).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (JP 2001-297457) in view of Knight (US 6449221) as applied to claims 11,12 and 15 above and further in view of Yonezawa et al (US 4703408).

Regarding claim 14, Watanabe in view of Knight fail to disclose wherein said mirror rotation means is a Piezo-effect element. In the same field of endeavor, Yonezawa discloses an Piezo-effect element for rotating a mirror in an optical head assembly (70, fig. 10 and col. 10 lines 59-66). It would have been obvious to one of ordinary skill in the art to provide an piezo effect element for driving the mirror as taught by Yonezawa. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide an piezo effect element in order to achieve ultra fine tracking of the optical assembly.


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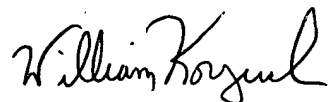
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


T. Goma
1/18/2006


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